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EXAMINER

LEE, RICHARD J

ART UNIT PAPER NUMBER

2613

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/378,398

Applicant(s)

TEO, PATRICK

Examiner

Richard Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

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1. In view of the Decision on Appeal dated May 6, 2005 and upon further review and consideration, the following new grounds of rejections are deemed appropriate. The Examiner apologizes for any inconvenience that this may have caused for the applicant.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-8, 12, 14, 15, 20, 23, 24, 27, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Egawa (5,138,460).

Egawa discloses an apparatus for forming composite images as shown in Figures 1-4, 6, 10, and 12, and the same camera as claimed in claims 1-8, 12, 14, 15, 20, 23, 24, 27, and 31, comprising the same camera lens (6 of Figure 1 and see column 2, lines 64-68); acquisition circuitry (see Figure 2) receiving images via the camera lens, for acquiring a first field of view when the camera lens is in a first orientation and for acquiring a second field of view when the camera lens is in a second orientation (i.e., nTH frame of Figure 3(a) represents the first field of view, (n+1)TH frame of Figure 3(a) represents the second field of view, see Figures 2, 3(a), 3(b), and column 2, line 60 to column 3, line 59); a viewfinder (i.e., FINDER of Figures 3(a) and 3(b), and see column 3, lines 35-59) displaying the second field of view when the camera lens is in the second orientation and displaying at least a portion of the first field of view at least partially composited with the second field of view, the second field of view at least partially overlaps the first field of view (see column 7, lines 15-24); wherein a size of the at least a portion of the first field of view is prescribed relative to a size of the first field of view, the size of the at least a

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portion of the first field of view is prescribed relative to a size of the second field of view, the size of the at least a portion of the first field of view is its width, and the size of the second field of view is its width, the size of the at least a portion of the first field of view is its height, and the size of the second field of view is its height, the size of the at least a portion of the first field of view is the field of view angle it subtends, and the size of the second field of view is the field of view angle it subtends (see Figures 3(a), 3(b), 6(a) to 6(c), column 3, line 35 to column 4, line 39); wherein the focus of the camera lens is not changed during acquisition of the first and second and at least one additional fields of view (see column 2, line 60 to column 3, line 59, column 7, lines 6-14); combining circuitry for combining the first and second fields of view, wherein the first and second fields of view are portions of a scene and wherein the combining circuitry combines the first and second fields of view into a panoramic image of the scene (see column 3, lines 35-59); view control circuitry for selecting a portion of the panoramic image to display, and wherein the viewfinder displays the selected portion of the panoramic image (see column 7, lines 6-14); wherein the acquisition circuitry acquires at least one additional field of view (i.e., (n-1)TH or (n-2)TH frame of Figure 10) with the camera lens being in at least one additional orientation, and wherein the viewfinder displays an additional field of view of the camera lens when the camera lens is in each additional orientation and displays at least a portion of at least one previously acquired field of view at least partially composited with the additional field of view, wherein each additional field of view at least partially overlaps the at least one previously acquired field of view (see FINDER of Figure 10, and column 7, lines 6-33); and perspective conversion circuitry for converting a perspective of the at least a portion of the first field of view from the first orientation to the second orientation (i.e., the hatched portion of the

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first field of view (nTH frame) of Figures 3(a) and 3(b) represents the portion of the first field of view that is converted from a first orientation (within nTH frame) to a second orientation (within FINDER), see column 3, lines 35-59).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9-11, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa.

Egawa discloses substantially the same camera as above, but does not particularly disclose the followings:

(a) wherein the size of the at least a portion of the first field of view is prescribed to an amount between 20% and 40% of the size of the second field of view, wherein the at least a portion of the first field of view is composited with the second field of view by an opacity of approximately 50%, and wherein the at least a portion of the first field of view is composited with the second field of view by an opacity of approximately 100% as claimed in claims 9-11; and

(b) wherein the at least a portion of the at least one previously acquired field of view is composited with the additional field of view by an opacity of approximately 50% and wherein the at least a portion of the at least one previously acquired field of view is composited with the additional field of view by an opacity of approximately 100% as claimed in claims 24 and 25.

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Regarding (a) and (b), it is noted that Egawa does teach as shown in Figures 6(a) to 6(b) the particular varying of the size or area of the display of fields of views (see column 4, lines 25-39). Egawa is however silent as to the specific percentages of displays for the respective fields of views as claimed. Without specific criticality and since Egawa teaches the desire to vary the range of the size of display fields within a panoramic setting, the specific percentage of displays for the respective fields of views as claimed are considered only a matter of choice by one of ordinary skill in the art. In addition, it is considered obvious to provide the field of view display percentages since these values are merely optimum or workable ranges, and it is not invention to discover the optimum or workable ranges through routine experimentation. This opinion/view is supported by In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Therefore, it would have been obvious to one of ordinary skill in the art, having the Egawa reference in front of him/her and the general knowledge of the image formatting and compositing of images for panoramic display, would have had no difficulty in using the teachings of Egawa involving the varying of the size or area of display fields of view to provide the size of the at least a portion of the first field of view prescribed to an amount between 20% and 40% of the size of the second field of view, the compositing of the first field of view with the second field of view by an opacity of 50% or 100%, and the compositing of the previously acquired field of view with the additional field of view by an opacity of 50% or 100%, since such percentages are only a matter of choice for the same well known different image formatting and desired overlapping region of images for panoramic displaying purposes as claimed.

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6. Claims 13 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa as applied to claims 1-8, 12, 14, 15, 20, 23, 24, 27, and 31 in the above paragraph (3), and further in view of Inoue of record (6,144,804).

Egawa discloses substantially the same camera as above, but does not particularly disclose a lens focus lock for locking the focus of the camera lens during acquisition of the first and second and the at least one additional fields of view as claimed in claims 13 and 28.

However, Inoue discloses a camera with visual line detection capability and teaches the conventional use of a camera with focus lock features (see column 4, lines 39-45). Therefore, it would have been obvious to one of ordinary skill in the art, having the Egawa and Inoue references in front of him/her and the general knowledge of camera focussing features, would have had no difficulty in providing the lens focus lock feature as taught by Inoue for the camera of Egawa for the same well known fixed focussing of images purposes as claimed.

7. Claims 16, 18, and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa as applied to claims 1-8, 12, 14, 15, 20, 23, 24, 27, and 31 in the above paragraph (3), and further in view of Dunton et al of record (6,304,284).

Egawa discloses substantially the same camera as above, but does not particularly disclose the followings:

(a) wherein the panoramic image has a cylindrical and spherical geometry as claimed in claims 16 and 18; and

(b) an indicator indicating when the camera lens is in the second orientation, the indicator is a light, and is a beeper as claimed in claims 35-37.

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Regarding (a) and (b), Dunton et al discloses a method and apparatus for creating panoramic or surround images using a motion sensor equipped camera as shown in Figures 1A and 5, and teaches the conventional cylindrical and spherical format recording of panoramic images (see column 5, line 49 to column 6, line 19), and the particular use of verbal and/or visual indicators such as the display of arrows in a LCD for moving the camera into the proper orientation so as to capture and acquire the proper amount of overlap between images for panoramic image display (see 516 of Figure 5 and column 8, lines 7-62). Therefore, it would have been obvious to one of ordinary skill in the art, having the Egawa and Dunton et al references in front of him/her and the general knowledge of panoramic image displays, would have had no difficulty in providing the cylindrical and spherical geometry format of panoramic images as well as visual and verbal indicators for indicating the proper orientations as taught by Dunton et al as part of the camera system within Figure 1 of Egawa for the same well known use of different formatting of images for selective display and use of prompts via visual and/or verbal forms for indicating the proper positioning of the camera for acquiring the desired images for producing a smooth connection of images for panoramic display purposes as claimed.

8. Claims 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa and Dunton et al as applied to claims 1-8, 12, 14-16, 18, 20, 23, 24, 27, 31, and 35-37 in the above paragraphs (3) and (7), and further in view of Kang et al of record (6,256,058).

The combination of Egawa and Dunton et al discloses substantially the same camera as above, further including wherein the panoramic image has a cylindrical geometry (see column 5, lines 49-67 of Dunton et al).

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The combination of Egawa and Dunton et al does not particular disclose rectilinear to cylindrical conversion circuitry for converting the first and second fields of view from rectilinear coordinates to cylindrical coordinates and cylindrical to rectilinear conversion circuitry for converting the selected portion of the panoramic image from cylindrical coordinates to rectilinear coordinates as claimed in claims 17 and 21. The particular conversion of rectilinear coordinates to cylindrical coordinates and vice versa for images, in general, is old and well recognized in the art, as exemplified by Kang et al (see column 3, line 65 to column 4, line 7, column 4, lines 25-30, column 5, lines 6-60). Therefore, it would have been obvious to one of ordinary skill in the art, having the Egawa, Dunton et al, and Kang et al references in front of him/her and the general knowledge of rectilinear and cylindrical coordinate systems and the associated conversions between the coordinate systems, would have had no difficulty in providing the rectilinear to cylindrical conversion circuitry and cylindrical to rectilinear conversion circuitry as taught by Kang et al for the panoramic images of Egawa for the same well known cylindrical and rectilinear coordinate compliance purposes as claimed.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa as applied to claims 1-8, 12, 14, 15, 20, 23, 24, 27, and 31 in the above paragraph (3), and further in view of Dube et al of record (6,269,144).

Egawa discloses substantially the same camera as above, but does not particularly disclose rectilinear to spherical conversion circuitry for converting the first and second fields of view from rectilinear coordinates to spherical coordinates as claimed in claim 19. The particular conversion of rectilinear coordinates to spherical coordinates, in general, is old and well recognized in the art, as exemplified by Dube et al (see column 3, lines 33-46, column 24, lines

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1-12). Therefore, it would have been obvious to one of ordinary skill in the art, having the Egawa and Dube et al references in front of him/her and the general knowledge of rectilinear and spherical coordinate systems and the associated conversions between the coordinate systems, would have had no difficulty in providing the rectilinear to spherical conversion circuitry as taught by Dube et al for the panoramic images of Egawa et al for the same well known spherical and coordinate compliance purposes as claimed.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa and Dunton et al as applied to claims 1-8, 12, 14-16, 18, 20, 23, 24, 27, 31, and 35-37 in the above paragraphs (3) and (7), and further in view of Dube et al of record (6,269,144).

The combination of Egawa and Dunton et al discloses substantially the same camera as above, further including wherein the panoramic image has a spherical geometry (see column 6, lines 5-19 of Dunton et al).

The combination of Egawa and Dunton et al does not particularly disclose, though, spherical to rectilinear conversion circuitry for converting the selected portion of the panoramic image from spherical coordinates to rectilinear coordinates as claimed in claim 22. The particular conversion of rectilinear coordinates to spherical coordinates, in general, is old and well recognized in the art, as exemplified by Dube et al (see column 3, lines 33-46, column 24, lines 1-12). And in view of such rectilinear to spherical conversion of Dube et al, it is consider obvious to provide the complementary spherical to rectilinear conversion of images as claimed. Therefore, it would have been obvious to one of ordinary skill in the art, having the Egawa, Dunton et al, and Dube et al references in front of him/her and the general knowledge of rectilinear and spherical coordinate systems and the associated conversions between the

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coordinate systems, would have had no difficulty in providing the spherical to rectilinear conversion circuitry as taught by Dube et al for the panoramic images of Egawa for the same well known rectilinear coordinate compliance purposes as claimed.

11. Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa as applied to claims 1-8, 12, 14, 15, 20, 23, 24, 27, and 31 in the above paragraph (3), and further in view of Anderson (6,657,667).

Egawa discloses substantially the same camera as above, but does not particularly disclose wherein the first and second and the at least one additional fields of view are portions of a scene and wherein the combining circuitry for combining the first and second and the at least one additional fields of view into a panoramic image of the scene as claimed in claims 29 and 30. However, Anderson discloses a method and apparatus for capturing a multidimensional array of overlapping images for composite image generation as shown in Figures 1-3, 6A, 6B, and 9, and teaches the conventional combination of first (i.e., Image 1 of Figure 6B), second (i.e., Image 2 of Figure 6B), and at least one additional fields of view (i.e., Image 3 of Figure 6B) into a panoramic image of the scene (see Figures 6A, 6B, and column 6, lines 1-36). Therefore, it would have been obvious to one of ordinary skill in the art, having the Egawa and Anderson references in front of him/her and the general knowledge of the combining of images for panoramic production, would have had no difficulty in providing the combination circuitry as taught by Anderson for combining the first, second, and additional fields of view of Egawa for the same well known capturing and combining of images so as to produce a panoramic image of a scene purposes as claimed.

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12. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa as applied to claims 1-8, 12, 14, 15, 20, 23, 24, 27, and 31 in the above paragraph (3), and further in view of Truc et al of record (6,268,936).

Egawa discloses substantially the same camera as above, but does not particularly disclose perspective conversion circuitry including line processing circuitry for determining modified color values at pixel locations within vertical lines of the converted at least a portion of the first field of view, wherein the line processing circuitry determines modified color values at pixel locations within vertical lines of the converted at least a portion of the first field of view based on unmodified color values at a corresponding vertical line of the at least a portion of the first field of view as claimed in claims 32 and 33. However, Truc et al discloses a film scanner as shown in Figure 8 and teaches the conventional modification of colors associated with panoramic and photographic images (see column 5, lines 25-36, column 7, lines 26-40).

Therefore, it would have been obvious to one of ordinary skill in the art, having the Egawa and Truc et al references in front of him/her and the general knowledge of color modification of images, would have had no difficulty in providing the color modification of images as taught by Truc et al for the panoramic images of Egawa for the same well known color enhancement purposes as claimed.

13. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Egawa and Truc et al as applied to claims 1-8, 12, 14, 15, 20, 23, 24, 27, and 31-33 in the above paragraphs (3) and (12), and further in view of Yui et al of record (US 2002/0175924 A1).

The combination of Egawa and Truc et al discloses substantially the same camera as above, but does not particularly disclose wherein the line processing circuitry re-scales vertical

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lines of the at least a portion of the first field of view as claimed in claim 34. However, Yui et al discloses an image display system as shown in Figure 1, and teaches the particular re-scaling of vertical lines of images (see page 2, section [0026]). Therefore, it would have been obvious to one of ordinary skill in the art, having the Egawa, Truc et al, and Yui et al references in front of him/her and the general knowledge of image re-scalings, would have had no difficulty in providing the vertical line image re-scaling as taught by Yui et al for the panoramic images of Egawa for the same well known re-scaling of original image data purposes as claimed.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (571) 272-7333. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

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